

# *[Occupant Counter Control Switch for automatic turning on and off electrical appliances in a room.]*

## **Abstract**

A provided smart switch called Occupant Counter Control Switch, or OCCS, basically comprises of a motion sensor PIR, a photo sensor, an amplifier with band-pass filter, a microprocessor, a digital display, and a relay or triac to drive electrical appliances such as lights. The PIR sensor detects heat from a human body moving across it and generates a distinctive signal that is, unique to each of the two directions, further processed by the microprocessor for counting and thereby controlling the relay. Installed at the entrance of a room replacing the regular switch (see Fig. 1), the OCCS counts up, displaying a digit great than zero, upon detecting a person entering the room and turns on the lights if sensing insufficient ambient light. OCCS constantly energizes the lights during the room is occupied and immediately switches them off upon counting down to zero when detecting the last person exiting the room.